

# **IPP DEVELOPMENT: AN INVESTOR'S PERSPECTIVE**

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James Booker is Senior Manager – Project Planning, for PT Paiton Energy, the developer, owner and operator of the 1,230 MW Paiton Swasta I Power Project in Eastern Indonesia. At full dispatch, the plant consumes approximately 4.5 million tonnes per year of coal sourced from Kalimantan, and Mr. Booker's responsibilities include management of the coal supply chain from source to plant stockpile.

Mr. Booker's career spans almost 30 years, with the majority of it being in the mining/minerals industry, with consultants, contractors and owners, including involvement in the development of two major coal-mining projects in Western Canada. He has worked on numerous projects in Europe, the USA, Canada, Peru, Ecuador, Bolivia, China, Indonesia, Brunei Darussalam, the Philippines and Vietnam, and since 1991 he has been resident in Indonesia.

Prior to joining PT Paiton Energy in mid-1998, Mr. Booker held the position of President Director & General Manager for the Asia regional headquarters of a major firm of Canadian consulting engineers specializing in projects in the mining/mineral processing industry, and during that time he was involved in several coal mining projects in Indonesia.

Mr. Booker holds the degrees of Bachelor of Science in Structural Engineering from South Bank University, London, and Master of Business Administration from the National University of Singapore Graduate School of Business. He is a registered European Engineer, a Chartered Civil Engineer (UK), a registered Professional Engineer (BC, Canada), a Fellow of the Australasian Institute of Mining and Metallurgy, and a Fellow of the American Society of Civil Engineers.

**(ABSTRACT)**

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**By : JAMES BOOKER**

**SENIOR MANAGER – PROJECT PLANNING  
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In 1990, the Government of Indonesia introduced the IPP Policy, encouraging private investment in electrical power generation. In 1994, PT Paiton Energy and the State electricity utility, PLN, executed a PPA, and ushered in the Paiton Swasta I Project as the first IPP in Indonesia. The tariff structure of Paiton Swasta I was comparable to tariffs in other economies of the region, and at the time of signing the PPA, PLN's domestic tariff was higher than the Paiton Swasta I tariff.

By the time the power plant was brought into commercial operation in July 1994, Indonesia was suffering the effects of the Asian economic crisis, which had resulted in a punishing devaluation of the Rupiah and the fall of the New Order regime of Suharto. PLN declared its inability to comply with the terms of the PPA, and both sides commenced legal actions.

After a period of stalemate the parties were brought back to the negotiating table in November 1994. Two years of negotiations followed, during which time PE provided power at rates significantly lower than in the PPA.

Finally, in December 2001 PLN and PE agreed upon the terms for a restructured PPA.

# **IPP DEVELOPMENT: AN INVESTOR'S PERSPECTIVE**

## **PAITON SWASTA I – THE FIRST IPP IN INDONESIA**

### **DEVELOPMENT FROM 1990 TO 1995**

#### **The Power Purchase Agreement**

In 1990, the Government of Indonesia (“GOI”) announced a policy encouraging private investment in electrical power generation (“the IPP Policy”). The IPP Policy implemented Law 15/1985 on electric energy, which called for private investment in the electric power industry. The IPP Policy was urged by the World Bank and other international financial institutions to meet Indonesia’s projected average 15% annual increase in demand for electrical power. The IPP Policy was also implemented consistent with the requirements of the Indonesian Foreign Investment Law of 1967, and required participation by Indonesian investors pre-qualified by the GOI.

The GOI, via the Ministry of Mines and Energy, established a private electricity preparatory team, Tim Persiapan Usaha Ketenagalistrikan Swasta (“Tim PUKS”), which was followed by the creation of the private electricity negotiation team, Tim Negosiasi. Tim Negosiasi reported to Tim PUKS and conducted the actual commercial negotiations with potential bidders. Tim Negosiasi was an inter-ministerial team consisting of representatives of (a) the Ministry of Finance (including the Directorate General of Tax), (b) the Ministry of Mines and Energy, Directorate General of Electricity and New Energy (“DJLEB”), (c) the foreign investment coordinating board, Badan Koordinasi Penanaman Modal (“BKPM”), and (d) the State electricity utility, Perusahaan Listrik Negara (“PLN”). This negotiation format, including the inter-ministerial team, was unique to Paiton Swasta I and was considered by the GOI to be important in ensuring a cautious, prudent and fully vetted negotiation process.

After several months of preparation, in May 1991, on the instructions of Tim PUKS, the DJLEB prepared Terms of Reference for the first private power project, and invited various Indonesian and foreign entities that had shown an interest in developing private power projects to submit proposals. After some deliberation, Tim PUKS selected the Paiton site in East Java as the optimum location for the first private power plant. The Paiton site had been selected previously by PLN for development into an eight-unit complex and was designed to provide generating capacity to East Java and the Java-Bali electrical transmission grid.

On May 6, 1991, six companies and consortia of companies received from the DJLEB individual Invitations to Bid related to the Paiton Swasta I project. The six were: (1) GEC Alsthom International, (2) PT Intan Prima Kartika Indonesia, (3) Sumitomo Corporation, (4) PT Abdibangan Buana and Asea Brown Boveri, (5) Intercontinental Energy Corporation (“Intercontinental”), and (6) PT Batu Hitam Perkasa (“BHP”). After releasing the Terms of Reference, the DJLEB, during May through August 1991, organized various meetings to provide additional information and clarification to all potential bidders. In September 1991, two consortia, BNIE (Bimantara Group-Intercontinental) and BMMG (BHP, Edison Mission Energy, Mitsui, and General Electric Capital Corporation) submitted competing bids on the Paiton Swasta I project in compliance with the Terms of Reference and the Invitations to Bid.

In June 1992, the GOI advised the BMMG Consortium that it had been selected, subject to successful final negotiations, to build the first two private power units (Units 7 and 8) at the Paiton site. Negotiations between the BMMG Consortium and the GOI over the terms of a

Power Purchase Agreement (“PPA”) took place over the next 21 months. The negotiations concluded on February 12, 1994, with the execution of the PPA.

During the negotiations, Tim Negosiasi was advised by a team of internationally recognized consultants, including three financial advisors (Lazard Freres, S.G. Warburg, and Lehman Brothers), technical advisors (Lahmeyer International), legal counsel (White & Case), and a senior international private power specialist sponsored by the United States Agency for International Development (“USAID”). These consultants played very active roles in advising the GOI throughout the negotiations.

In accordance with the requirements of the Foreign Investment Law of 1967, and its foreign investment licenses, the BMMG Consortium formed PT Paiton Energy Company (“PE”) in February 1994 (renamed PT Paiton Energy in 1999 pursuant to Ministry of Justice requirements).

### **The Tariff Structure of Paiton Swasta I:**

Paiton Units 7 and 8 have a net capacity of 615 MW each. Units 7 and 8 were the first generation facilities designated by PLN and Tim PUKS for design, construction, operation and ownership by private parties, and are the units covered by the Paiton Swasta I PPA. After just over 4 years of construction, Unit 7 was commissioned on May 21, 1999, and Unit 8 on July 10, 1999. At the request of Tim Negosiasi, PE also financed and built infrastructure facilities (the “Special Facilities”), to be used not only by PE but also by PLN (Units 1 and 2) and other IPPs (Units 3, 4, 5, and 6) at the Paiton site. The beneficiaries of these expenditures, which were over and above the cost for construction of Paiton Swasta I, are PLN, the other IPP investors and Indonesian consumers, through lower capital costs for Units 3, 4, 5 and 6.

The tariff for the power generated by Units 7 and 8 was the subject of lengthy and intensive negotiation and comprises four components:

- Component A: capacity charge (the largest element, designed to defray the fixed costs of building the facility).
- Component B: fixed operations/maintenance charge.
- Component C: coal fuel charge.
- Component D: variable operations/maintenance charge.

Components C and D vary depending on the level of electricity generated.

Component A, the largest cost element, was scheduled to “step-down” over time as the senior long-term debt was amortized. The GOI specifically required a step-down tariff to lower the cost of power in the later years of the PPA. Based on the best information available, PE projected that Component A would step-down as follows:

Years 1 – 6: The Rupiah equivalent of 6.12¢ per kWh

Years 7 – 12: The Rupiah equivalent of 5.97¢ per kWh

Years 13 – 30: The Rupiah equivalent of 3.10¢ per kWh

The average Component A over the term of the PPA would be 4.28¢ per kWh

(Note: The PPA tariff is calculated in kilowatt-years, and the actual cost per kWh varies with the amount of electricity generated.)

PE projected that the average total tariff would be the Rupiah equivalent of 6.3¢ per kWh over the 30-year term of the PPA. This price included the cost of building the Special Facilities (included in the Component A costs) shared with other units at the Paiton location operated or to be operated by PLN and other independent power producers. PE's best estimate was that this additional infrastructure would add the Rupiah equivalent of approximately 0.72¢ per kWh to the cost of electricity generated by PE. Excluding that figure, the average total tariff would be the Rupiah equivalent of approximately 5.5¢ per kWh over the 30-year PPA term. This tariff is comparable to those of other economies in the region (*figure 1*).

## **The Coal Supply Chain**

Government of Indonesia Regulation 37/92 required that domestic coal, to the maximum extent available, be utilized as fuel for PE and all other coal-fired independent power production facilities in Indonesia. It was PE's understanding that this requirement was designed to develop Indonesia's vast coal reserves and nascent coal mining industry. At the time of the Invitation to Bid, there was only one coal mining company in operation in Indonesia producing coal in quantities capable of supporting high-volume industrial use. Since the introduction of the GOI policy, several producing and operating mines have been developed that are supplying large volumes of coal both for domestic consumption and export.

The lenders to the project (including the US and Japanese Governments) required significant and tangible assurances that ample coal of suitable quality could be delivered to PE in a timely manner. At the time that the project was conceived, no Indonesian coal supplier was producing more than 2 to 3 million metric tons of coal per year. In fact, in 1991 production from Indonesian mines was 14 million tonnes from 6 producers, including 6 million tonnes from the State coal mining company, PT Tambang Batubara Bukit Asam ("PTBA"). In 1994, production had increased to 30 million tonnes from 10 major producers – approximately 2.5 million tonnes more was produced by dozens of private and cooperative mines, none of which, however, was capable of producing more than 500 thousand tonnes per year. The Paiton Swasta I project alone requires 4.3 million metric tons per year. In addition, Indonesian coal producers needed long-term assurances before they would commit the significant financial resources required to increase production to meet the needs of PE.

During the course of the coal discussions, PE's lenders retained an international coal expert to analyze Indonesian coal capacity to assure them that PE was making the correct choice of coal supply for the project. Four Indonesian companies were considered as potential coal sources: PT Berau, PT Kaltim Prima, PT Multi-Haripan and PT Adaro Indonesia ("Adaro"). After a thorough review of these sources, PE and its lenders determined that Adaro was the only mine that had the reserves to supply the project with the amount of coal required to operate the plant for the 30 year PPA, and to accommodate the lenders' stringent requirements for stockpiling and delivering coal to the Paiton site.

Working with the lenders, PLN and Adaro, PE also determined that the security of supply to the Paiton site required a fully integrated coal chain under long-term contracts. PE's foreign sponsors determined that BHP, PE's Indonesian shareholder, would best be able to structure a coal supply chain to satisfy the lender requirements for an assured supply and the GOI requirement for use of Indonesian coal, through BHP's affiliate, Adaro. Furthermore, because Adaro coal contains less than 0.2% sulfur, PE was able to meet its contractual obligation to the GOI to produce less than 10% of the emissions allowable within the "air

bubble” surrounding the Paiton site (Paiton Units 1 through 8) under applicable Indonesian and World Bank guidelines. This meant that Paiton Swasta I (by virtue of the use of Adaro coal, and the pollution control equipment, including flue gas desulfurization and electrostatic precipitators, that were installed in the plant) would be one of the cleanest coal-fired power plants in the world.

In 1995, PE established a long-term coal supply contract with BHP, and a fully integrated coal supply chain was structured to provide the necessary security required by the lenders (*figures 2 and 3*). Under the terms of the Fuel Supply Agreement (“FSA”) between PE and BHP, the following measures were included to provide the level of security of supply that the lenders required:

- Single source coal supplier.
- Dedicated coal reserves sufficient for 15 years supply, at all times.
- Dedicated 200,000 tonne stockpile at the Kelanis barge-loading facility.
- Dedicated fleet of tugs and barges to transport coal from Kelanis to the Indonesia Bulk Terminal (“IBT”) facility.
- Dedicated 100,000 tonne stockpile at IBT.
- Two dedicated geared-and-grabbed Handymax vessels to transport coal from IBT to the Paiton Swasta I power plant.
- Plant stockpile of 670,000 tonnes capacity, at all times.

## **PROJECT IMPLEMENTATION FROM 1995 TO COMMERCIAL OPERATION**

### **Facility Construction**

In early 1995, a turnkey Engineering, Procurement, Construction (“EPC”) contract was awarded to a consortium comprising Mitsui, Toyo Engineering and Duke Fluor Daniel for the design, engineering, procurement and construction of Units 7 and 8 and the Special Facilities, for a fixed price of US\$ 1.8 billion. The plant was to be completed, commissioned and in commercial operation by May 24, 1999. In actual fact, Unit 7 Commercial Operation Date (“COD”) was May 21, 1999, and Unit 8 COD was July 10, 1999 – an enviable accomplishment when it is considered that the project was at the height of construction activities during the turbulent times of the economic crisis in 1997 and the ensuing social and political upheaval in 1998.

### **An Ill Wind**

By the time that the plant was fully commissioned and ready for commercial operation, Asia had suffered a devastating economic crisis, and Indonesia was one of the economies worst hit by its aftermath. While in the early days of the crisis it appeared that Indonesia might weather the storm better than its neighbors, it quickly became clear that this was not to be the case, and that Indonesia would suffer more than any other economy. The value of the Rupiah tumbled, and with it, the confidence of the people in the government of President Suharto also crumbled. The reform movement increased in strength, and following bloody riots in Jakarta in early May 1998, Suharto finally stepped down from the presidency on May 21, 1998.

Whilst the value of the Rupiah stabilized somewhat after the demise of the so-called New Order administration of Suharto, the average exchange rate against the US\$ in 1999 was 7,400, whereas shortly before the crisis the exchange rate was 2,450. Prior to the economic

crisis, Indonesia had managed the Rupiah within a band of 4% to 5% devaluation per year against the US\$ by intervention of the State bank, Bank Indonesia. However, one of the first actions by the government following the onset of the crisis was to float the Rupiah freely, and it rapidly lost value. At the time of negotiation of the PPA, PLN's domestic tariff was at the Rupiah equivalent of 7¢ per kWh. In mid-1999, when the Paiton Swasta I plant began commercial operations, PLN's domestic tariff had shrunk to less than the Rupiah equivalent of 2¢ per kWh – less than its actual production cost – due to the punishing devaluation of the Rupiah.

The projections for growth in electricity demand forecast by the GOI and World Bank were borne out in fact over the period from 1984 to 1997, with an average growth rate of almost 14% per annum in the Jawa-Bali Grid (*figure 4*). Following the economic crisis and the fall of Suharto, there was a temporary collapse in demand during 1998. This temporary collapse in demand, together with the already artificially low domestic tariff, exacerbated PLN's precarious financial position, and the GOI was called upon to provide additional funds to PLN, thus hamstringing valuable GOI resources. PLN then decided that it was in an untenable position and was unable to comply with its contractual obligations under the Paiton Swasta I PPA, and sought to abrogate these obligations. At the same time, PLN chose to operate the state-owned plants in preference to the IPP plants, even though the IPP plants were more environmentally beneficial.

Several months passed during which time PLN declined to dispatch the plant and refused to make payments in accordance with the PPA. Thus, under the terms of its financing documents, PE was forced to initiate an arbitration proceeding against PLN for default under the terms of the PPA. At the same time, PLN initiated court proceedings in Jakarta seeking to have the PPA declared null and void. After the transitional presidency of Habibie, and the first democratic elections in November 1999, Abdurrahman Wahid was elected President of the Republic of Indonesia, and he immediately set out to seek a solution to the problems facing IPPs, PLN and the GOI. His first step was to mandate that the GOI and its enterprises would honor contracts made in the past, and, bearing in mind the extreme economic problems facing Indonesia, he made it clear that he expected all parties to set aside litigation, and work together to renegotiate the contracts for the mutual benefit of the IPPs, PLN and the people of Indonesia.

## **FROM STALEMATE TO A RESTRUCTURED PROJECT**

### **Restructuring the PPA**

Upon reaching COD for the plant, PE's obligations to repay debt began. Unfortunately, with PLN's inability to comply with its obligations under the PPA, PE was receiving no revenue and thus was not in a position to make the periodic payments of principal and interest mandated in the loan documents. In addition, in complying with its requirements under the PPA, PE was incurring significant operating costs in order to ensure that the plant was available for dispatch according to the PPA. PE reached agreement with its lenders to defer principal payments, although interest payments were still to be made in accordance with the loan documents. PE's shareholders were forced to make additional equity available, in the form of contingent overrun equity, in order to ensure payment of interest and operational costs until such time as PE began to receive revenue from PLN. In November 1999, PE and PLN began negotiations towards rationalization of the PPA.



After intensive negotiation, in February 2000, PE and PLN executed an interim agreement under the terms of which PLN agreed to pay for the actual cost of energy dispatched, plus a small monthly fixed cost for capacity, and PLN began to dispatch power from Paiton Swasta I. Since the agreed-upon capacity payment was insufficient to cover fixed operational costs and the periodic interest payment on the debt, PE's shareholders continued to shoulder the burden from the contingent overrun equity. This first interim agreement expired at the end of 2000, and during the intervening time, PE and PLN continued negotiations towards agreement on modifications to the PPA that would satisfy PE, its lenders, its shareholders, PLN and the GOI. Although agreement was not reached during this time, negotiations had progressed positively, and a second interim agreement was executed in January 2001, which increased the fixed monthly capacity payment to a level at which PE was able to cover fixed operational costs and payment of periodic interest without the necessity to draw from contingent overrun equity, although the amounts of the fixed payments still were not sufficient to begin payment of principal. Negotiations towards agreement on modifications to the PPA aimed at arriving at a tariff acceptable to PLN, which would also enable PE to repay debt and equity, and ensure at least a modest return to shareholders, continued throughout 2001, during which time two further interim agreements were executed.

In mid-December 2001, PE and PLN finally reached a commercial agreement on pricing, arrearages and related provisions of the PPA that will need to be amended as part of the long-term restructuring of the PPA. However, agreement is yet to be reached on the specific changes to be incorporated in an amendment to the PPA, and both PE and PLN have yet to meet all conditions precedent for the effectiveness of such amendment to the PPA. Given the time constraints faced by them, PE and PLN decided to set forth their agreements and understandings regarding the long-term restructuring of the PPA in a Binding Term Sheet ("BTS") while they continue to finalize the amendment to the PPA.

For purposes of simplicity, the BTS consists of four parts. Part 1 relates to a "standstill" of legal proceedings between the parties. Part 2 relates to the confidentiality of ongoing discussions between the parties. Part 3 deals with agreed-upon PPA commercial issues, including changes to the term of the PPA; modifications to Components A (capacity) and C (energy); and payment of a Restructuring Settlement Payment ("RSP") in respect of PPA arrearages. Part 4 addresses the implementation of the BTS, and conditions precedent to the effectiveness of the amendment to the PPA. It is anticipated that the final amendment to the PPA will be agreed to on or before March 31, 2002.

The original PPA term was 30 years, and details of the "step-down" tariff have been described above. In accordance with the BTS, the term of the PPA will be extended from 30 years to 40 years, and changes will be made to Components A and C. Component A will no longer "step-down", but will remain constant over the new term of the amended PPA (*figure 5*), resulting in a reduction of the average total tariff of approximately 30%. The PPA will be amended so that Component C will equal the CIF cost of coal (at PE's jetty) required for the Plant to operate and provide Net Electrical Output to PLN as per the amended PPA. The modification will provide that the CIF cost of coal (at PE's jetty) properly reflects the market price for coal as delivered and unloaded, which coal meets the specifications set forth in the PPA, and furthermore, that the contracts for supply of coal are on customary market terms and conditions including foreign currency and fuel price adjustments.

## Restructuring the Coal Supply Chain

A significant factor in the rationalization of the PPA was the restructuring of the coal supply chain. At the time of development of the original PPA and financing of the project, it was deemed necessary to implement a complex integrated coal supply chain with dedicated resources from mine to power plant. By the time the plant was put into commercial operation, the price of coal delivered through the coal supply chain was significantly dislocated from market price and the price being paid by PLN for deliveries to its Paiton Units 1 and 2 and its Suralaya power plant, with PE's coal cost being in the order of US\$ 10 to US\$ 12 per tonne higher.

In the intervening years between the project's inception and commercial operation, the Indonesian coal industry had undergone tremendous changes. From a fledgling, and largely untested industry in 1991, producing 14 million tonnes, the Indonesian coal industry, by 1999, was ranked with the world's top ten producers, with a production of 74 million tonnes, and with well-established sales into Japan, Korea, Chinese Taipei, USA, and several European economies. In addition, in the early 1990's there was very little experience in the inter-island transport of coal by barge, and also considerable concern over potential problems with congestion on the Barito River due to projected increases in barge traffic. These concerns contributed to the decision to use dedicated Handymax vessels for coal transport, and to develop dedicated stockpiles at Adaro's Kelanis barge-loading facility and the IBT coal terminal. However, by 1999, coal was being transported from Kalimantan to Java on a regular basis without interruption or mishap, and the Barito River channel proved to be more than adequate to handle a significant increase in barge traffic.

It was apparent to PE, PLN and PE's lenders that the original coal supply chain was no longer necessary in order to provide an acceptable level of comfort with the security of coal supply. Furthermore, it was clear that the much higher price of coal through the coal supply chain as implemented now seriously disadvantaged PLN, since the delivered coal price was a pure "pass-through" cost to PLN within Component C of the tariff, under which terms PE would make neither a profit nor a loss on coal purchases. PE took the initiative to begin the task of restructuring the coal supply chain even before negotiations had begun with PLN on the rationalization of the PPA. As a first step, a detailed study of the existing coal supply chain and possible alternatives was undertaken, and the following decisions were made with regard to dismantling the existing coal supply chain and developing a new, and more efficient and cost-effective alternative, which would still provide PE's lenders with the required level of security.

- Removal of the requirement for dedicated reserves – instead, Adaro must periodically satisfy lenders' technical advisor of its long-term ability to satisfy PE's coal requirements in the context of Adaro's total operational demands.
- Elimination of the dedicated stockpile at Kelanis – Adaro will commit to maintain a minimum level of coal in common stockpiles for all customers.
- Removal of the constraints upon barging contractor to dedicate tug-barge sets only to PE. – Adaro's contract with barging contractor will be "global".
- Streamlining of supply chain by elimination of the intermediate storage at IBT.
- Eliminate Handymax vessels and transport coal directly from Kelanis facility to power plant by barge – requires the installation of unloading equipment on Paiton Jetty.
- Change from single-source supplier (Adaro) to the concept of a primary supplier providing 60% to 70% of requirements with the balance supplied by 2 or 3 secondary suppliers.

*Figures 6 and 7 illustrate the anticipated restructured coal supply chain.*

In order to restructure the coal supply chain, the long-term contracts between PE and BHP, and between BHP and its subcontractors – Adaro, for coal supply; Louis Dreyfus Armateurs (“LDA”) for shipping; and IBT for terminal services – would need to be terminated. It was recognized that termination negotiations would take some time to conclude, and in the meantime PE needed to purchase coal at a price that would be acceptable to PLN in order to be dispatched. A Temporary Suspension Agreement (“TSA”) was executed by and among PE, BHP, Adaro, LDA and IBT, which froze the FSA and allowed PE to negotiate directly with each party for settlement of contract termination. Under the terms of the TSA, PE was also allowed to purchase coal directly from Adaro, on a CIF basis, without the need to utilize the existing coal supply chain. At the same time, the lenders temporarily waived their requirements for dedication of reserves, stockpiles, barges and ships. In this way, Adaro was able to deliver coal to PE at a price competitive with that being paid by PLN.

There are costs associated with the restructuring exercise – settlement for termination of contracts, purchase and installation of unloading equipment at Paiton Jetty, and ongoing operation and maintenance costs for unloading equipment – and these costs must be offset against the benefits accruing from the reduction in delivered coal price. PE and PLN currently are engaged in negotiating an agreement on how these costs will be apportioned between the two parties. In the meantime, Adaro continues to deliver coal in geared-and-grabbed Handymax vessels (since there are no unloading facilities yet installed at Paiton). The coal is barged down the Barito River from Kelanis, and self-loaded at the Taboneo anchorage in the mouth of the river, and from there directly to Paiton Jetty. PE has begun discussions with three other Indonesian coal suppliers whose coal qualities are within the specifications established for the project. It is anticipated that long-term agreements will be reached in due course, such that in the future, Adaro as the primary supplier, plus 2 or 3 secondary suppliers, will provide PE with all its coal needs.

## **THE FUTURE OF IPPs – RISK ALLOCATION**

### **Historical Risk Allocation Under PPAs**

The allocations of risks between the various parties to PPAs in emerging markets are customary for cross-border project financing transactions. For major projects such as power development and other similar projects, a stable investment climate is a prerequisite, such that investors can plan for the future with a quantifiable degree of certainty. The key to developing and fostering that necessary degree of certainty is for each party to understand completely what risks the investor will be prepared to incur and assume, and what risks the other parties will be prepared to incur and assume. In recent years, as economic pressures have increased on governments and they have sought to avoid direct borrowing, the project financing of major private infrastructure projects has become the preferred route to ensure that necessary infrastructure is developed, while decreasing the direct burden on the state.

Host governments typically understand and accept that privately financed infrastructure projects must be funded in highly liquid currencies from well-developed banking markets, in order that the significant amounts of capital may be raised in an effective and timely manner. The lenders will require that proper mechanisms be put in place to ensure that currency adjustments are adequately addressed, such that revenues received are sufficient to cover both local and foreign currency commitments. Lenders will also require assurance that the estimated revenues from the project will not be compromised by changes in law and/or

political developments, including changes in government. The most important characterization of risk sharing is that the allocation should be appropriately balanced, in that the various risks are assigned to the party that is best able to assume and manage those risks. Appropriate and careful risk allocation, in the end, serves to minimize overall project cost.

## **Appropriate Risk Allocation for IPP Projects in Today's Environment**

### Host Government Risks

#### Changes in Currency Rates:

- Host governments take the risk that estimates of local/foreign currency exchange rates will be accurate.
- State power companies are able to hedge the risk by virtue of their status as SOEs.

#### Demand and Supply:

- State power companies take the risk that the power supplied by the IPP will be needed.
- The host government and the state power company control estimation of demand forecasts. How the host government addresses its supply/demand issues involves a number of political issues and determinations that only the host government can make.
- It may not choose the most economically efficient manner of addressing such issues in favor of a more socially beneficial solution.

#### Changes in Law:

- Since the host governments usually own state power companies, it is appropriate that they bear the risk that the host governments could make political decisions that adversely affect the rights provided for under PPAs.
- Laws enacted in the best interests of society may not be the most beneficial economically.

#### Governmental Force Majeure:

- The state power company, as host government agency, is in the best position to absorb costs and losses if the IPP is unable to perform due to matters within the control of the host government and not in the control of the IPP.

#### Inconvertibility:

- State power companies, since owned by the host government, have the best opportunity to convert local currency into the currency of the debt. Therefore it is appropriate for the state power company to agree to do so if the IPP cannot so convert.
- If the host government chose to build and finance power plants without private sector involvement, it too would have to borrow in foreign currency.

#### Transmission Network:

- The state power company takes the risk that it can transmit the power the IPPs produce, where and when needed.
- The state power company controls the transmission grid and dispatch according to its needs.

## IPP Risks

### Construction:

- The IPP takes the risk of building the project for the cost that is estimated in agreeing to the PPA tariff.
- Higher costs not caused by the state power company cannot be shifted to the host government.
- If the plant is not completed on schedule the IPP has to pay damages to the host government.

### Financing:

- The IPP takes the risk that it can obtain sufficient financing at acceptable rates, costs and premiums to complete the project within the costs estimated in arriving at the PPA tariff.
- Often the IPP is required to finance within a limited period. If it fails to do so it will be unable to recoup the project development investment.

### Fuel Supply:

- Paiton Swasta I took the risk that it could obtain or contract for adequate supplies of low ash/low sulfur Indonesian coal for the life of the project.
- Paiton Swasta I was required to use Indonesian coal and to generate especially low emissions to “subsidize” the higher emissions from PLN units 1 + 2.
- This involved making substantial new investment in the coal supply facilities, the cost of which was to be covered by the electricity tariff, since at the time the PPA was being negotiated, there was a lack of demonstrated performance history showing Indonesian coal suppliers could perform as required.

### Operations& Maintenance:

- The IPP takes the risk that it can operate and maintain the plant at the operating levels required under the PPA. If it cannot do so, it will not receive adequate revenues to pay its costs, debt service, and returns to its investors.

### Capital Equipment Investment:

- The IPP takes the risk that adequate reserves have been maintained for necessary capital equipment replacements and maintenance. If not, the IPP’s revenues suffer, impacting its ability to pay its expenses, debt service, and equity returns.

## **Possible Future Risk Allocation**

In the future, it may be possible to re-allocate risks from where they are best placed in today's environment. However, this re-allocation could only be attempted after a significant evolutionary transformation of the market as a whole in the particular economy. Such an evolution would have to include:

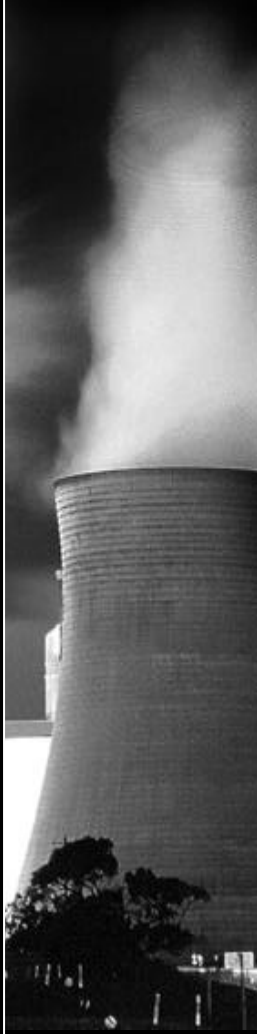
- A distribution system adequate in all respects to meet expected power demand.
- A transparent regulatory regime with merit order based on fuel costs.
- Management of stranded costs under existing PPAs.
- An independent power distributor – without host government intervention.
- Highly liquid foreign exchange market to allow foreign exchange hedging by private parties at reasonable cost.

## **Towards a Better Understanding**

- Allocation of risks is a cooperative determination and it must be based upon the agreement of all interested parties.
- Risks should be allocated to the party best able to control and manage the specific risk.
- Unrealistic expectations by a host government as to what risks private investors will accept is not helpful in pursuing a serious program of private infrastructure development.
- Electricity infrastructure development is crucial to the continued development of other industries and the development of society as a whole.
- All emerging markets are in competition with each other for foreign investment funding and there is limited investment for projects of such magnitude.
- Capital will flow to wherever it can be assured of a reasonable and stable return.
- Investments in power projects have continued in those jurisdictions that have not sought to set aside the agreed-upon risk allocations and other provisions of the PPAs.



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4<sup>th</sup> APEC Coal TILF Workshop  
Kuala Lumpur, Malaysia, March 2002  
IPP Development: An Investor's Perspective

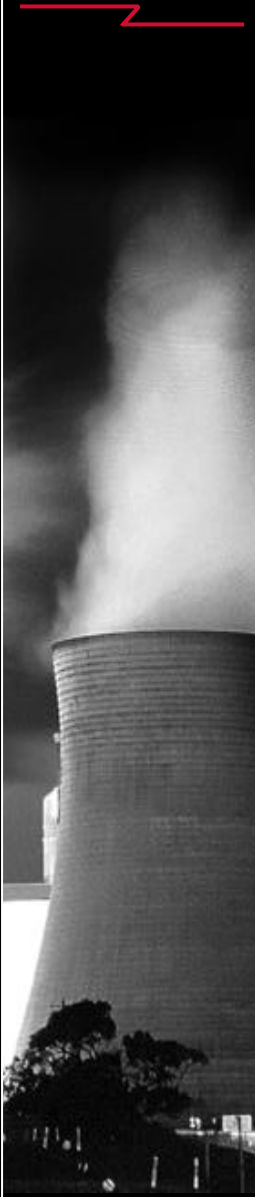


James Booker

PT Paiton Energy - Indonesia



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# IPP Development: An Investor's Perspective

## → Development from 1990 To 1995

- The Power Purchase Agreement
- The Tariff Structure of Paiton Swasta I
- The Coal Supply Chain

## → Project Implementation from 1995 to Commercial Operation

- Facility Construction
- An Ill Wind

## → From Stalemate To A Restructured Project

- Restructuring The PPA
- Restructuring the Coal Supply Chain

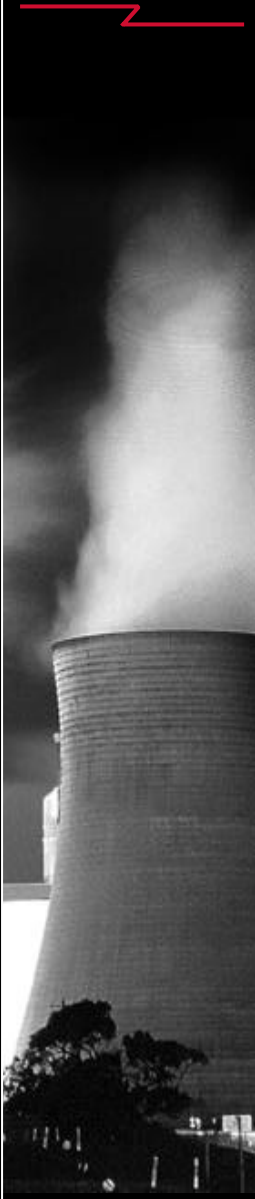
## → The Future of IPPs – Risk Allocation

- Historical Risk Allocation Under PPAs
- Appropriate Risk Allocation for IPP Projects in Today's Environment
- Possible Future Risk Allocation
- Towards a Better Understanding





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## Development: 1990 - 1995

### → Power Purchase Agreement

- Late '80's WB projected 15% annual growth in electricity demand
- '90 GOI announced IPP Policy - TOR in early '91 for first IPP
- Mid '91 tenders issued - mid '92 GOI selected PT Paiton Energy
- PT Paiton Energy foreign shareholders – EME, GE and Mitsui
- Final negotiations of PPA took 21 months
- Financing closed & mid '94 EPC contract awarded
- Construction started early '95
- State-of-the-art design – latest pollution control systems
- Total investment US\$2.5 billion
- 70% financed by syndicate of 50 international lenders & ECAs



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## Development: 1990 - 1995

### → Power Purchase Agreement

- PLN advised by team of international consultants in financial, legal and technical matters
- PPA Contract Term of 30 years
- Base-Load Plant operational philosophy – “Take As Delivered”
- Payment for Energy and Capacity – FOREX protected
- Energy Payment for fuel and variable O&M – pure pass-through, dependent totally on energy produced – no profit/loss for PE
- Capacity Payment for repayment of debt & equity, and for recovery of return on investment – depends on plant availability
- PLN has right to dispatch at whatever load it wishes
- Zero dispatch results in Capacity Payment covering debt & equity provided plant is available (i.e. not on outage)



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## Development: 1990 - 1995

### → The Tariff Structure of Paiton Swasta I

- Net Capacity of Units 7 & 8 – 615 MW each
- Infrastructure included Special Facilities to be used by PLN and other IPPs
- Tariff agreed after lengthy & intensive negotiation
- Four components:
  - Component A – Capacity Charge
  - Component B – Fixed O & M Charge
  - Component C – Energy Charge
  - Component D – Variable O & M Charge



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## Development: 1990 - 1995

### → The Tariff Structure of Paiton Swasta I

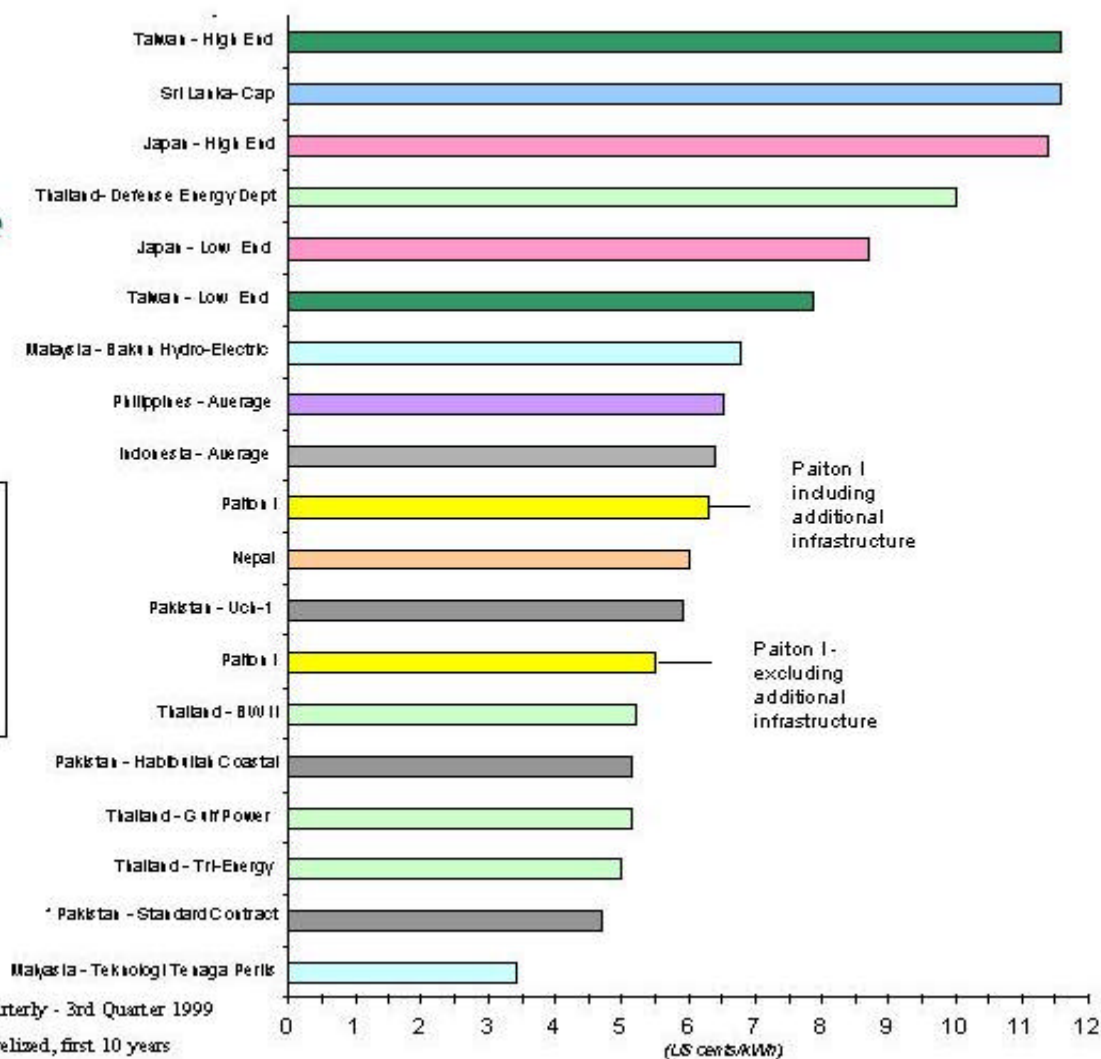
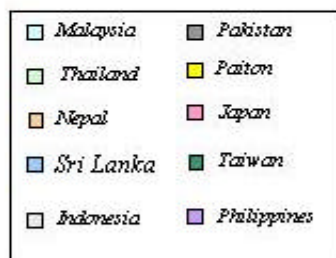
- GOI required “step-down” tariff to lower cost in later years
- “Step-down” matched long-term debt amortization
- Component A:
  - Years 1 – 6: Rp equivalent of 6.12 ¢ per kWh
  - Years 7 – 12: Rp equivalent of 5.97 ¢ per kWh
  - Years 13 – 30: Rp equivalent of 3.10 ¢ per kWh
- Average total tariff – 6.3 ¢ per kWh over PPA term
- Excluding Special Facilities – 5.5 ¢ per kWh over PPA term
- Comparable with other tariffs in the region



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## Development: 1990 - 1995

### Asia IPPs - Comparative Tariffs



Source : International Private Power Quarterly - 3rd Quarter 1999

\* Never achieved - actually 5.3 cents levelized, first 10 years



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## Development: 1990 - 1995

### → The Coal Supply Chain

- GOI required domestic coal be used for IPPs
- Lenders required assurances of security of supply
- Indonesian coal industry was in its infancy
  - 1991 production – 14 MMt & 6 producers
  - 1994 production – 30 MMt & 10 producers
- PE requirement – 4.3 MMt per year
- Lenders' security concerns addressed by integrated coal supply chain under long-term contracts
- Stringent emissions standards required low sulfur coal



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## Development: 1990 - 1995

### → The Coal Supply Chain

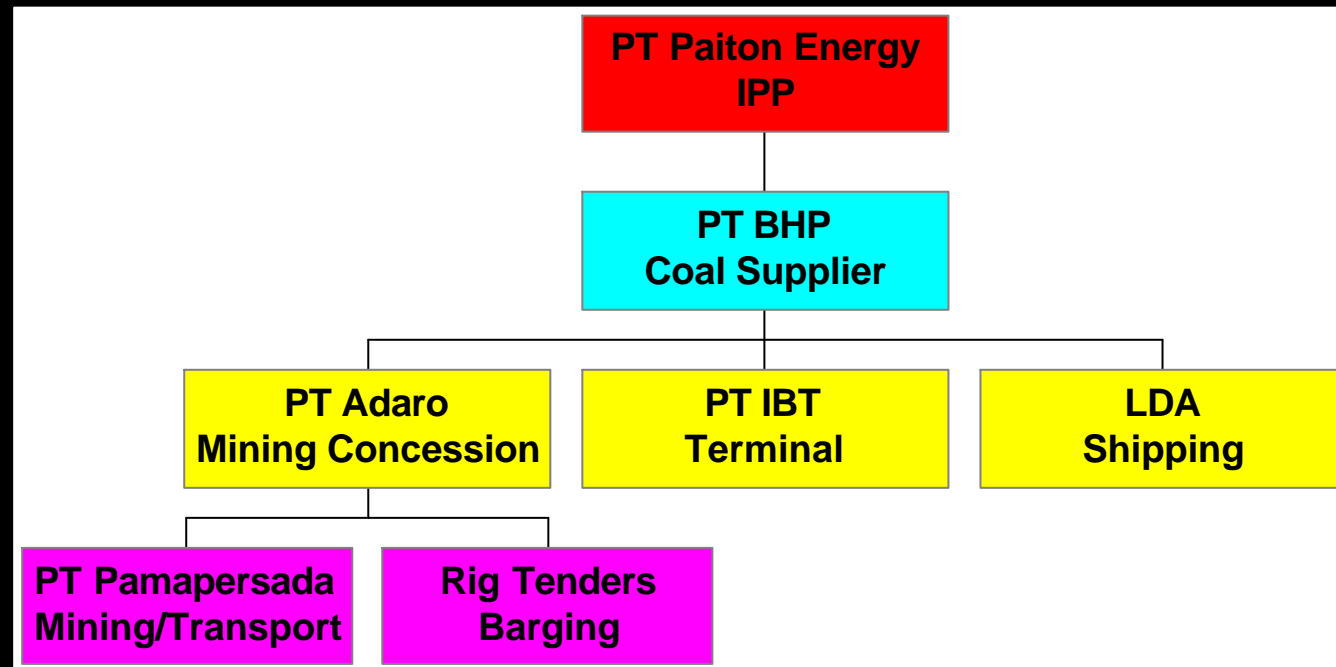
- 30-year contract with sole supplier - BHP
- Dedicated reserves from single source – Adaro
- Dedicated mining/transportation contractor - Pama
- Dedicated 200 kt stockpile at Kelanis barge-loading facility
- Dedicated tug-barge sets – Rig Tenders
- Dedicated 100 kt stockpile at IBT
- Dedicated Handymax vessels – Louis Dreyfus
- 670 kt stockpile at Paiton



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## Development: 1990 - 1995

### Coal Supply Chain - Existing Contract Structure







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## Development: 1990 - 1995

### Coal Supply Chain - Existing





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## Project Implementation: 1995 to COD

### → Facility Construction

- EPC contract awarded in early 1995
- Mitsui-Toyo-DFD consortium
- Plant COD scheduled for end-May 1999
- Scope: Units 7 & 8 and Special Facilities
- Lumpsum fixed price of US\$ 1.8 billion



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## Project Implementation: 1995 to COD

### → An Ill Wind

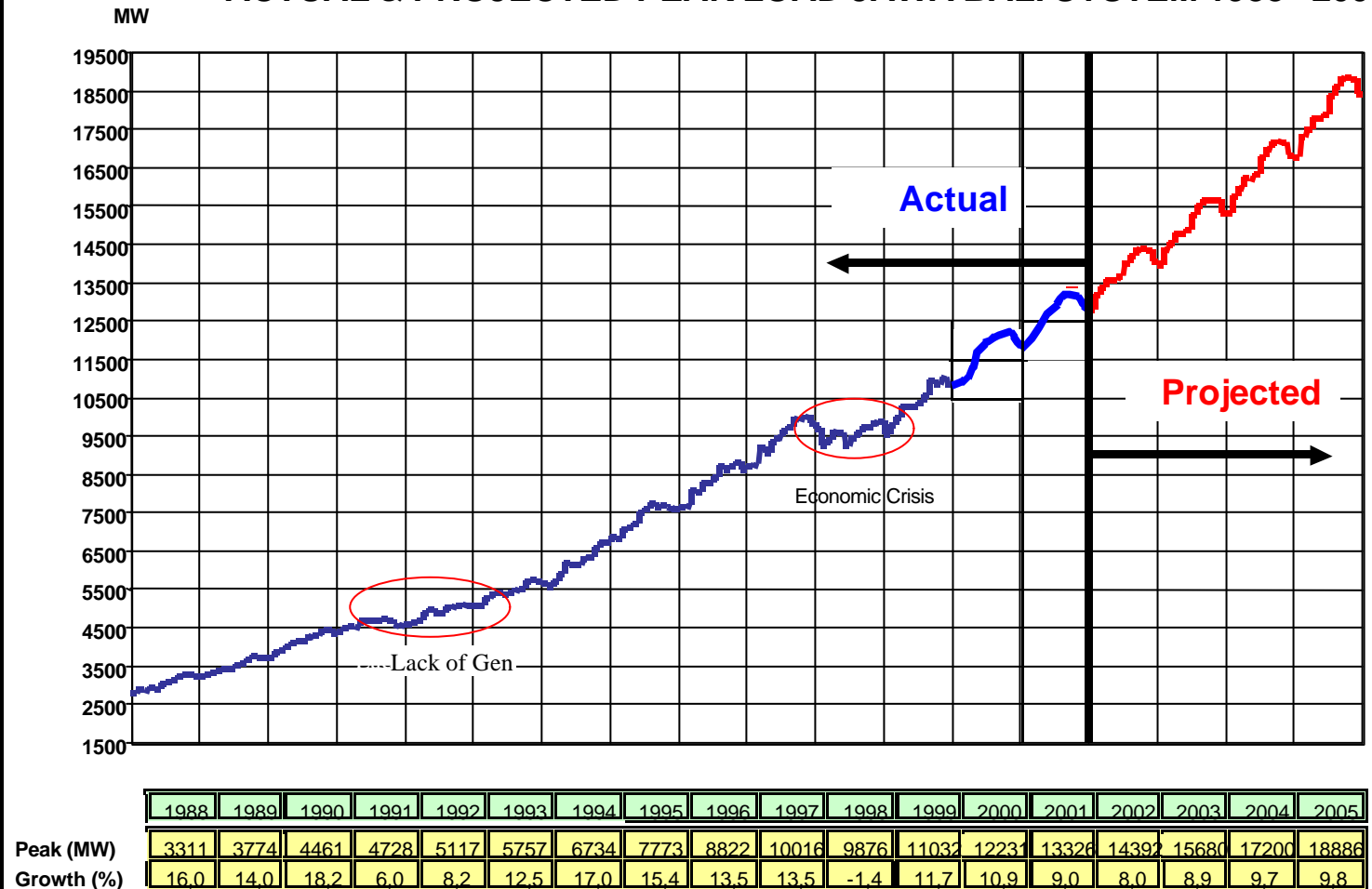
- Asian crisis – Rp devalued 80%
- Suharto regime collapsed
- PE tariff tied to US\$ >>> 3x PLN tariff to customers
- Rate of growth of demand continued at >10% pa
- PLN unable to comply with contractual obligations
- PE forced to initiate arbitration proceedings
- PLN countered with law suit
- Stalemate resolved by GOI resolution to honour contract



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## Project Implementation: 1995 to COD

ACTUAL & PROJECTED PEAK LOAD JAWA BALI SYSTEM 1988 - 2005





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## From Stalemate to a Restructured Project

### → Restructuring the PPA

- Debt repayment obligations began upon plant COD
- Lenders agreed to defer principal payments
- PE's shareholders injected additional equity to service interest and O & M costs
- First Interim Agreement with PLN in February 2000
  - Actual cost of energy – covered fuel and variable O & M
  - Nominal capacity payment – insufficient to cover fixed operating cost and interest
  - Additional equity used to make up shortfall



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## From Stalemate to a Restructured Project

### → Restructuring the PPA

- Three further interim agreements executed in January 2001, July 2001 and September 2001
- Each interim agreement increased level of capacity payment and PE could cover fixed operating costs and interest
- Negotiations aimed at PPA modifications to arrive at tariff acceptable to PLN while enabling PE to repay debt and equity with some return on equity to shareholders
- December 2001 agreement reached between PE and PLN on pricing, arrears and related provisions
- Agreement memorialized in Binding Term Sheet



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# From Stalemate to a Restructured Project

## → Restructuring the PPA

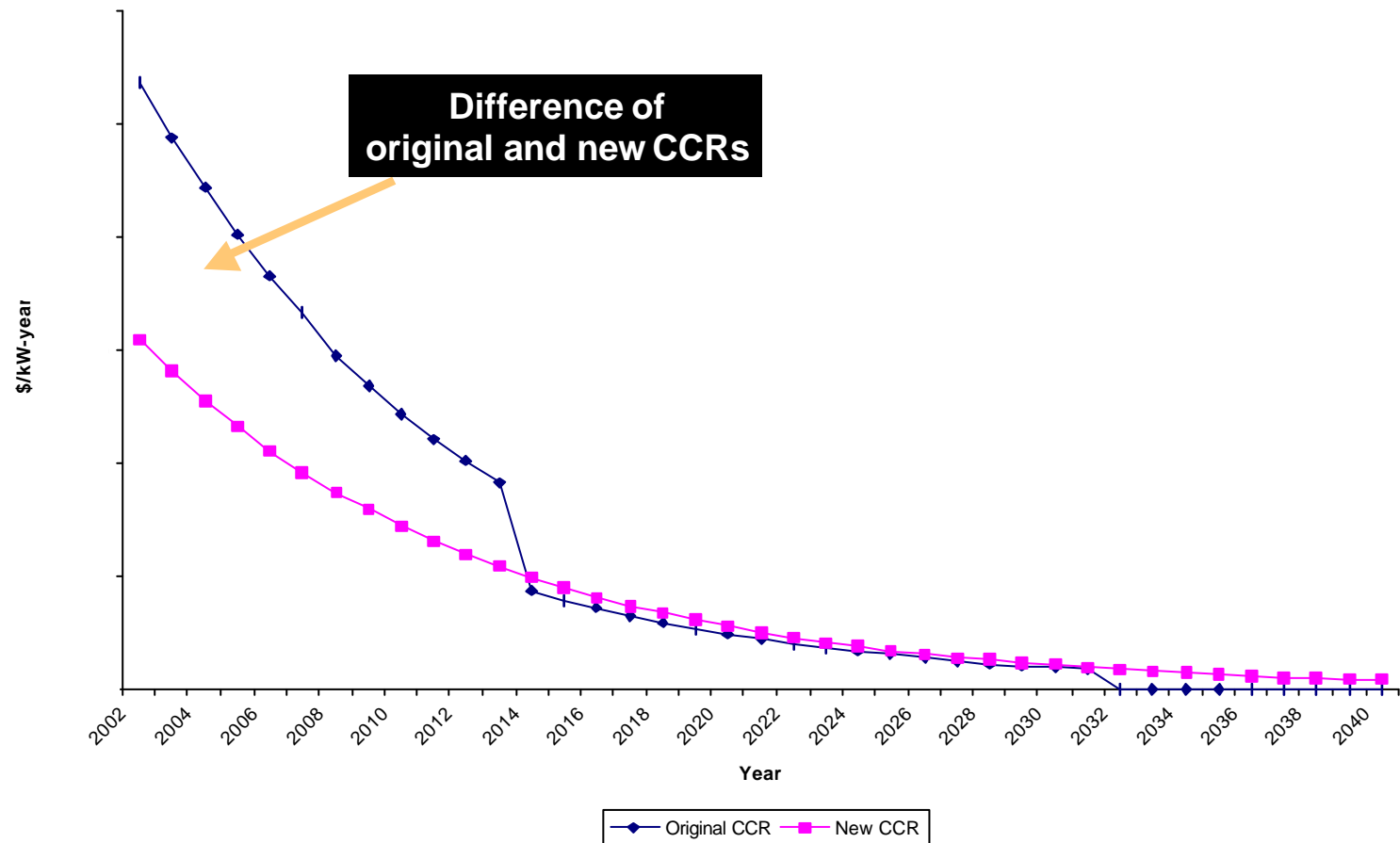
- Binding Term Sheet comprises 4 parts
  - Standstill of legal proceedings
  - Confidentiality of ongoing discussions
  - Commercial issues
  - Implementation of Binding Term Sheet
- Commercial Issues
  - Step-down tariff changed to flat tariff
  - Reduction in total tariff of ~ 30%
  - PPA extended to 40-year term
  - Coal cost reflects market price



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# From Stalemate to a Restructured Project

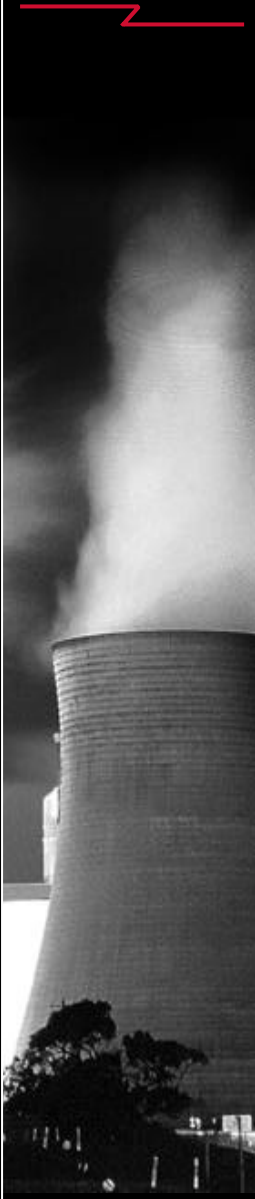
Component A - Discounted







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## From Stalemate to a Restructured Project

### → Restructuring the Coal Supply Chain

- Plant COD in mid-1999 – PE's coal price was dislocated by \$10 to \$12 per tonne
- 1999 Indonesian coal production – 74 million tonnes
- Regular inter-island transport of coal by barge
- Barito River channel more than adequate for traffic
- Existing coal supply chain not necessary to provide security
- Coal price was “pass-through” cost and PLN insisted on competitive pricing
- PE took the initiative to restructure coal supply chain



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## From Stalemate to a Restructured Project

### → Restructuring the Coal Supply Chain

- Elimination of dedicated reserves
- Elimination of dedicated stockpile at Kelanis
- Elimination of dedicated tug-barge sets
- Removal of IBT from the coal supply chain
- Change from delivery by Handymax to delivery by barges
- Introduction of secondary suppliers for 30% of coal
- Commitment of suppliers to maintain stockpiles of specified quantity to serve all customers



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## From Stalemate to a Restructured Project

### → Restructuring the Coal Supply Chain

- Long-term contract with BHP to be terminated
- BHP's long-term contracts with Adaro, LDA and IBT to be terminated
- PE negotiating settlements with each party individually
- TSA executed to enable direct coal supply by Adaro during termination/settlement negotiations
- Lenders temporarily waived security requirements
- PE and PLN discussing allocation of termination costs and capital & operating costs for new unloading equipment
- PE negotiating LT contracts with secondary suppliers

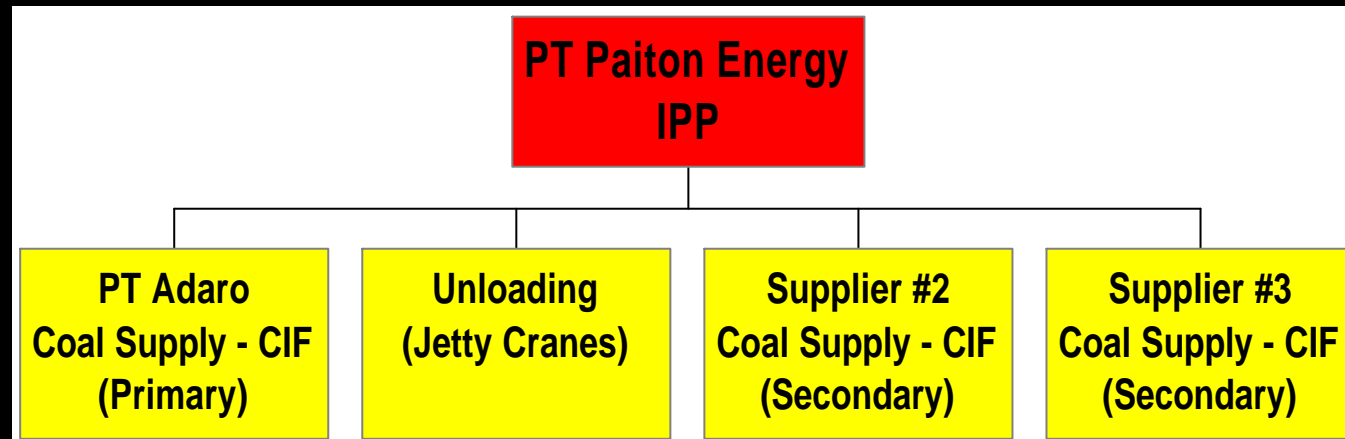


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# From Stalemate to a Restructured Project

Proposed Coal Supply Chain Structure





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# From Stalemate to a Restructured Project

## Proposed Coal Supply Chain





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## The Future of IPPs – Risk Allocation

### ➔ Historical Risk Allocation Under PPAs

- ➔ The risk allocations agreed to in the PPAs in Indonesia are customary for cross-border project financing transactions
- ➔ A stable investment climate is necessary such that investors can plan for the future with some degree of certainty
- ➔ Key to developing that degree of certainty is understanding what risks the investor is prepared to incur and assume, and what risks other parties are prepared to incur and assume
- ➔ Project financings of large private infrastructure projects became the preferred route in order that host governments could avoid direct borrowing



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## The Future of IPPs – Risk Allocation

### ➔ Historical Risk Allocation Under PPAs

- ➔ Host governments typically understand and accept that privately financed infrastructure projects must be financed in highly liquid currencies from well developed banking markets in order to raise significant amounts of capital
- ➔ Lenders require that there are adequate mechanisms to ensure currency adjustments so that the revenues received will be sufficient to cover both local and foreign currency costs
- ➔ Lenders require that estimated revenues will not be compromised by changes in law and/or political developments



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# The Future of IPPs – Risk Allocation

Appropriate Risk Allocation in Today's Environment

## Host Government Risks

### **Changes in Currency Rates:**

Host governments take the risk that estimates of the local/ foreign currency exchange rates will be accurate. State power companies have the ability, through the host government, to hedge the risk.

### **Demand and Supply :**

State power companies take the risk that the power supplied by the IPP will be needed. The host government and the state power company control estimation of demand forecasts. How the government addresses its supply/demand issues involves a number of political issues and determinations that only the government can make. It may not choose the most economically efficient manner of addressing such issues in favor of a more socially beneficial solution.

## IPP Risks

### **Construction:**

IPP takes the risk of building the project for the cost that is estimated in agreeing to the PPA tariff. Higher costs not caused by the state power company cannot be shifted to the host government. If the plant is not ready on time the IPP has to pay damages to the host government.

### **Financing :**

IPP takes the risk that it can obtain sufficient financing at acceptable rates, costs and premiums to complete the project within the costs estimated in the PPA tariff. Often IPP is required to finance within a limited period. If it fails to do so it is unable to recoup its investment.





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# The Future of IPPs – Risk Allocation

Appropriate Risk Allocation in Today's Environment

## Host Government Risks

### **Changes in Law:**

Since the host government usually owns the state power company, it is appropriate that it bear the risk that the host government could make political decisions that adversely affect the rights provided for under PPA. Laws enacted in the best interests of society may not be the most beneficial economically.

### **Governmental Force Majeure:**

The state power company, as government agency, is in the best position to absorb costs and losses if the IPP is unable to perform due to matters within the control of the host government and not in the control of the IPP.

## IPP Risks

### **Fuel Supply :**

PE took the risk that it could obtain/ contract for adequate supplies of low ash/ low sulphur Indonesian coal for the life of the Project. PE was required to use Indonesian coal and to generate especially low emissions to “subsidize” the higher emissions from PLN units 1 & 2.

This involved making substantial new investment in the coal supply facilities, the cost of which was to be covered by the electricity tariffs, since at the time the PPA was being negotiated, there was a lack of demonstrated performance history showing Indonesian coal suppliers could perform as required.



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# The Future of IPPs – Risk Allocation

Appropriate Risk Allocation in Today's Environment

## Host Government Risks

### **Inconvertibility:**

State power companies, since owned by the host government, have the best opportunity to convert local currency into the currency of the debt. Therefore it is appropriate for the state power company to agree to do so if the IPP cannot so convert.

If the host government chose to build and finance power plants without private sector involvement, it too would have to borrow in foreign currency.

### **Transmission Network:**

The state power company takes the risk that it can transmit the power the IPPs produce, where and when needed. The state power company controls the transmission grid and dispatch according to its needs.

## IPP Risks

### **Operations & Maintenance:**

The IPP takes the risk that it can operate and maintain the plant at the operating levels required under the PPA. If it cannot do so, it will not receive adequate revenues to pay its costs, debt service and returns to its investors.

### **Capital Equipment Investment:**

The IPP takes the risk that adequate reserves have been maintained for necessary capital equipment replacements and maintenance. If not, the IPP's revenues suffer, impacting its ability to pay its expenses, debt service and equity returns.



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## The Future of IPPs – Risk Allocation

### → Possible Future Risk Allocation

→ In the future, it may be possible to shift risks if, and only if, the market evolves as follows:

- adequate distribution system to meet power demand
- transparent regulatory regime with merit order dispatch based on fuel costs
- management of stranded costs under existing PPAs
- independent power distributor (no host government intervention)
- highly liquid foreign exchange market to allow foreign exchange hedging by private parties at a reasonable cost



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## The Future of IPPs – Risk Allocation

### → Towards a Better Understanding

- Allocation of risks is a cooperative determination and must be based on agreement of the parties.
- Unrealistic expectations as to what risks private investors will accept is not helpful in a host government's program to reverse the decline in infrastructure development.
- Electrical Infrastructure development will be crucial to continued development of other industries.
- Capital will go where it can get a reasonable, stable return.
- Power investments have continued in the jurisdictions that have not sought to set aside the risk allocations and other provisions of the bargained-for agreements.



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# Paiton Swasta I

